

Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Independent claims 1, 8, 10, 24, 28 and 35-37 have been amended for clarity. Dependent claim 9 has been amended to correct an informality.

Telephone Interview with Examiner

The undersigned would like to thank Examiner Karimi for the courtesies extended during the telephone interview on February 23, 2010. During the telephone interview, the claimed invention was further explained and the rejections were discussed. The Examiner's Interview Summary, mailed February 24, 2010, is believed to accurately describe the telephone interview. The undersigned provided instructional materials on polarization and the operation of the claimed invention. These materials are included with this reply as Appendix A.

Claim Objections

Dependent claim 9 has been amended to correct an informality. Therefore, the objection should be withdrawn.

Claim Rejections - 35 USC § 102 and § 103

Independent claims 1, 16, 19 and 36 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,593,957 ("Christie") in view of U.S. Patent No. 5,598,282 ("DeGroof").

Further, independent claims 8, 10, 28, 35 and 37 stand rejected under 35 USC §103(a) as being unpatentable over Christie in view of DeGroof and further in view of U.S. Patent No. 4,995,718 ("Jachimowicz").

It is respectfully requested that these rejections should be withdrawn for at least the following reasons.

Each of independent claims 1, 8, 10, 16, 19, 28, 35, 36 and 37, as amended for clarity, or as previously presented, recites a display system or display method that includes a pair of displays at an obtuse angle to each other and a beam splitter positioned relative to the two displays at the bisectrix of the obtuse angle to combine images from the displays, wherein the displays each output polarized light incident on the beam splitter where the polarization of the light incident on the beam splitter from each display is along the same direction at 45 degrees to the length and width of the displays or the polarization for both displays is circular in the same sense (right-handed circular polarization or left-handed circular polarization).¹

Christie fails to disclose the claimed display systems and display methods including a pair of displays wherein the polarization of light incident on the beam splitter is along the same direction at 45 degrees to the length and width of the displays (or at 45 degrees to a common linear axis, as is recited in amended claim 1).

Rather, as pointed out in the Office Action,² Christie has been found to disclose a pair of displays having orthogonal polarization. For example, at col. 9, lines 13-14, Christie discloses that “output polarizers of image LCDs 205r, 205l are oriented in **orthogonal directions**.” (Emphasis added). Disclosure of displays having orthogonal polarization is insufficient to support a rejection of displays where polarization is the same at 45 degrees to the length and width of the displays or displays wherein polarization of light incident on the beam splitter from each display is along the same direction at 45 degrees to the length and width.

In this regard, the Office Action seems to equate “orthogonal” polarization with the same polarization or polarization in the same direction. As was discussed during the telephone interview, this is not the case.³ For example, on page 3, the Office Action asserts Christie teaches “the displays (displays of lamps 200r and 200l) each output polarized light incident on the beam splitter (the output polarizer’s of image LCDs 205r and 205l are oriented in orthogonal directions toward the beam splitter 207), (col. 9, lines 13-16).” Clearly the ordinary meaning of orthogonal is a relationship between two things that are at a right angle or perpendicular to one another. For example, when first

¹ See, e.g., amended claim 10.

² See, e.g., Office Action at page 3.

³ See, e.g., Appendix A.

and second displays have orthogonal polarization, the polarization of the first display is crossed by 90 degrees relative to the second display - not in the same direction (or in the same sense in the case of circular polarization), as is recited in the various pending claims.

For at least this reason, the rejections of independent claims 1, 8, 10, 16, 19, 28, 35, 36 and 37, as well as their respective dependent claims, should be withdrawn because they are unsupported by the primary reference.

In addition, neither DeGroof nor Jachimowicz have been found to cure the above-noted deficiencies of Christie with respect to the pending independent claims.

Like Christie, DeGroof discloses a pair of displays having orthogonal polarizations (having polarizations that are crossed by 90 degrees, e.g., horizontal polarization and vertical polarization). At col. 2, lines 32-40 (reproduced below), DeGroof discloses displays having orthogonal polarizations.

A semi-transparent mirror 5 is disposed so that it bisects the angle between the LCDs. The light depicting the image for one eye emitted by one LCD is polarized at 90.degree. to the light depicting the other image for the other eye emitted by the other LCD. For example, the light emitted by LCD 3 is intended for viewing by the right eye of the user, and is horizontally polarized. The light emitted by LCD 1 is intended for viewing by the left eye of the user, and is vertically polarized.

DeGroof, col. 2, lines 32-40.

Similarly, Jachimowicz fails to cure the above-noted deficiencies of Christie and DeGroof, taken alone or in combination, with respect to the independent claims discussed above. At col. 2, lines 37-43 discusses displays arranged and bisected by a beam splitter where the displays have "S" polarization and "P" polarization that are orthogonal.

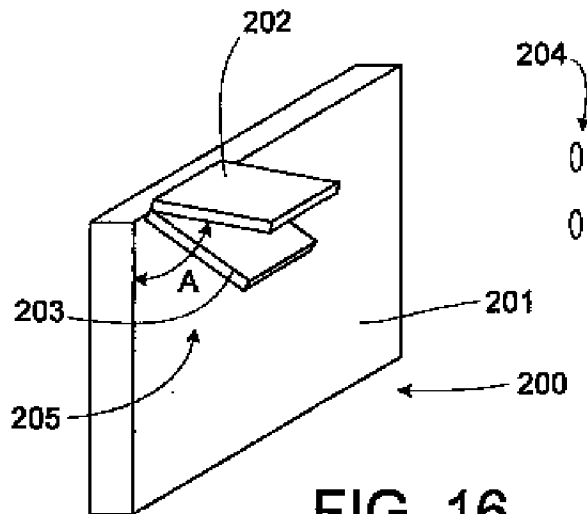
For at least these additional reasons, the rejections of independent claims 1, 8, 10, 16, 19, 28, 35, 36 and 37, as well as their respective dependent claims, should be withdrawn.

The respective dependent claims, while reciting further features, are not being independently discussed inasmuch as they are allowable for at least the same reasons

as the independent claims from which they depend. This absence of any comment regarding the dependent claims, however, should not be construed as an acquiescence to the contentions made in the Office Action.

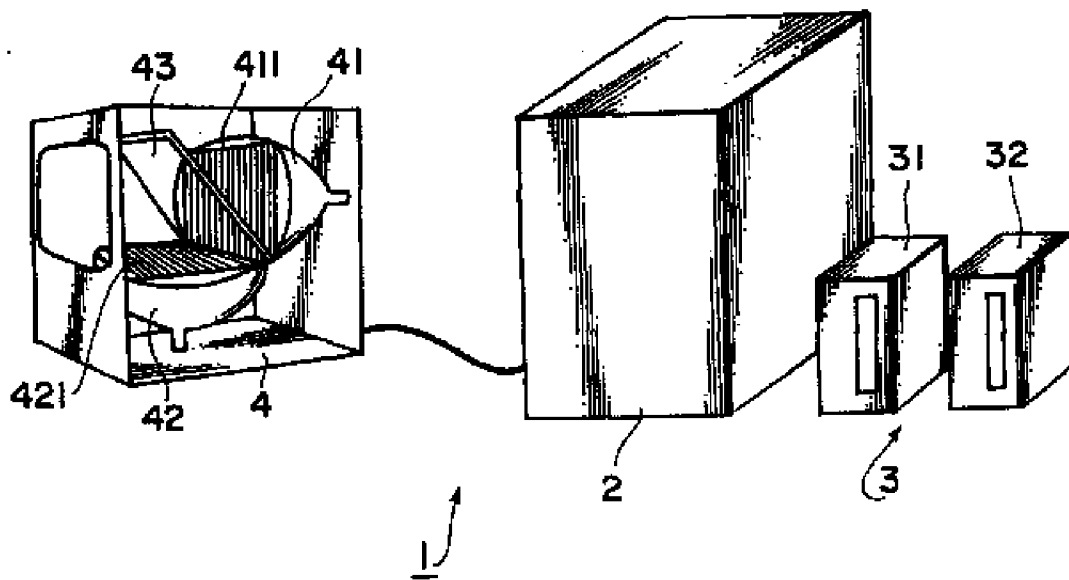
Independent claim 24 stands rejected under 35 USC §103(a) as being unpatentable over Christie in view of U.S. Patent No. 5,519,485 ("Ohtani"). It is respectfully submitted that the rejection should be withdrawn for at least the following reasons.

Claim 24, as amended, recites a display system that includes a first display device having a length and a width and optical polarization characteristics, a second display device having a length and a width smaller than the first display device and having optical polarization characteristics, the second display device being at an angle to the first display device and a beam splitter at the bisectrix of the angle between the first and second displays. The first display device and the second display device have optical polarization in the same direction at an angle of 45 degrees relative to the length and width of the display devices. FIG. 16 of the present application (reproduced below) shows an exemplary depiction of the display system recited in claim 24.



As noted above, Christie fails to disclose the claimed provision of a first display and a second display having optical polarization in the same direction at an angle of 45 degrees relative to the length and width of the displays. Ohtani fails to cure the deficiencies of Christie with respect to this claimed feature. For at least this reason, the rejection of amended claim 24 should be withdrawn.

The Office Action recognizes that Christie fails to disclose the claimed display system, including a first display having optical polarization characteristics and a second display smaller in area than the first display. The Office Action now turns to Ohtani to cure the deficiencies of Christie with respect to claim 24. However, it is respectfully submitted that Ohtani fails to cure the deficiencies of Christie with respect to claim 24 because Ohtani fails to disclose the claimed display system including a first display



device having optical polarization characteristics and a second display device having a length and a width smaller than the length and width of the first display device. Rather, Ohtani has been found to disclose a pair of displays that are the same size. For example, FIG. 1 of Ohtani (reproduced below) shows display 41 and display 42 being of the same size.⁴

⁴ Ohtani also discloses the displays 41 and 42 having orthogonal polarization characteristics. See, e.g., col. 3, lines 26-36.

At col. 3, line 64 - col. 4, line 4, Ohtani appears to describe display device 41 and display device 42 each having a main screen 411 and a sub screen 412 (not shown in FIG. 1). This disclosure, when viewed in connection with FIG. 1, appears to describe two display devices (41) and (42) that are of the same size, where each display is used to display multiple images (on the main display space and on the sub display space of each display). As such, Ohtani fails to disclose the display system arranged as claimed claim 24 (see, for example, FIG. 16 above).

For at least this additional reason, the rejection of claim 24 and the corresponding dependent claims should be withdrawn.

Telephone Correspondence

In the interests of advancing this application to allowance and compact prosecution, it is respectfully requested that the Examiner telephone the undersigned to discuss any of the foregoing with which there may be some controversy or confusion or to make any suggestions that the Examiner may have to place the application in condition for allowance.

In view of the foregoing, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

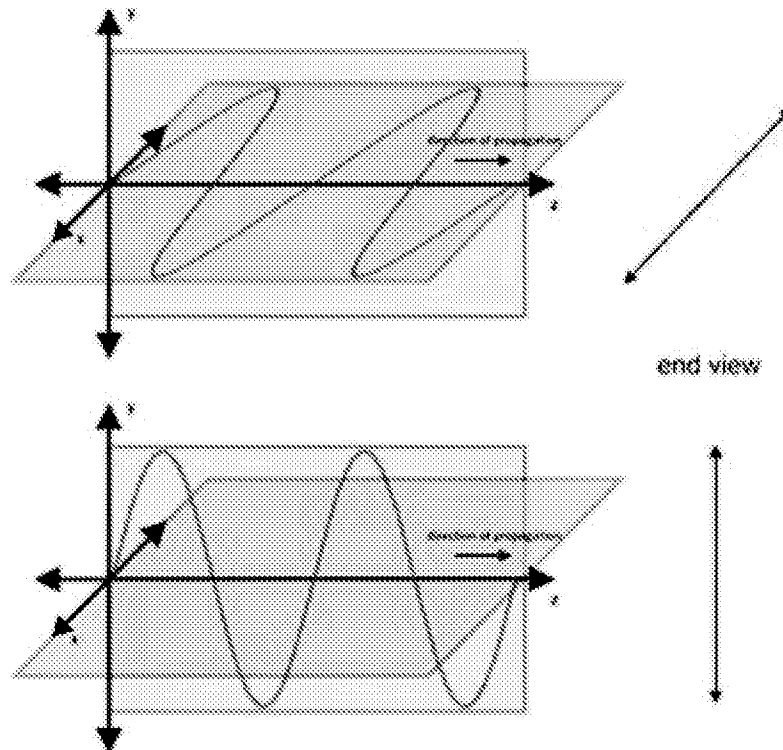
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Background on light waves and polarization

By convention, the polarization of light is described by specifying the orientation of the wave's electric field at a point in space over one period of the oscillation. When light travels in free space, in most cases it propagates as a transverse wave—the polarization is perpendicular to the wave's direction of travel. In this case, the electric field may be oriented in a single direction (linear polarization), or it may rotate as the wave travels (circular or elliptical polarization). In the latter cases, the oscillations can rotate rightward or leftward in the direction of travel, and which of those two rotations is present in a wave is called the wave's chirality or handedness.



Note in the above diagram, that both light waves are propagating in the same direction, but the direction of their polarizations is different

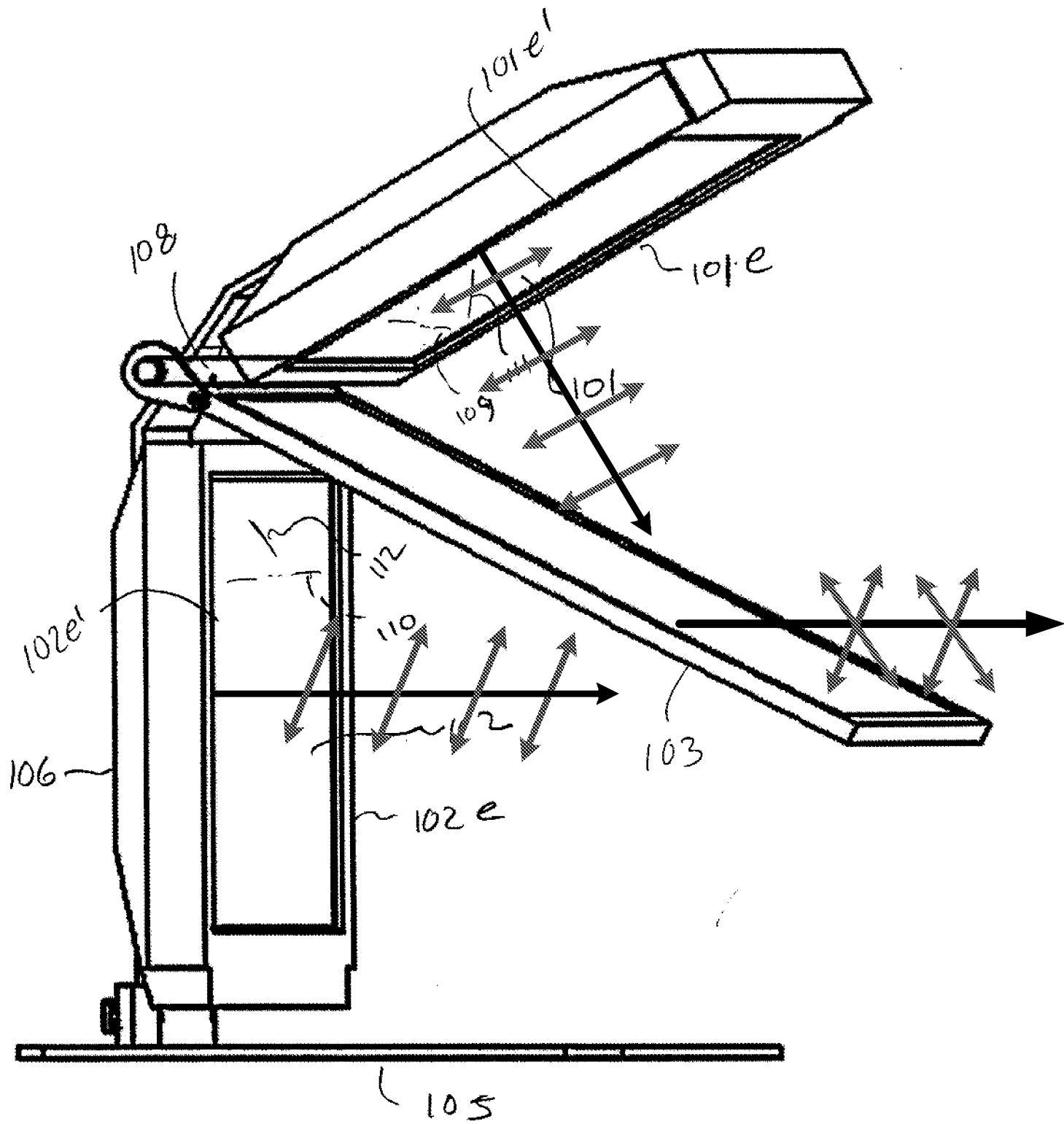
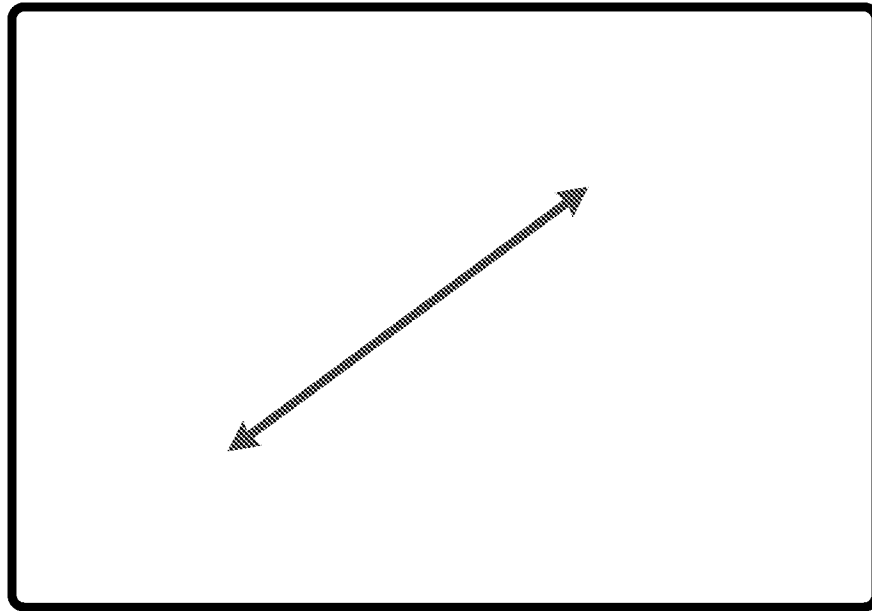


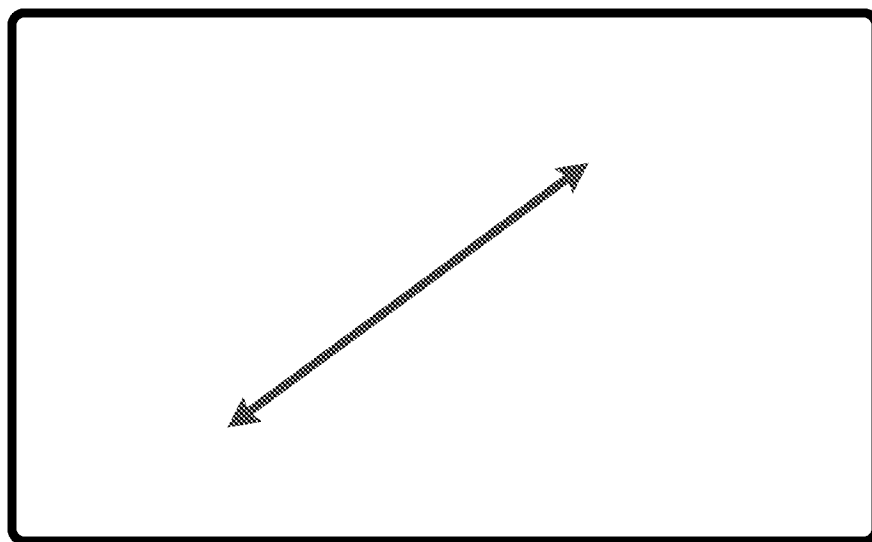
FIG. 12

Isometric view

Polarization of light from displays before the light arrives at the beam splitter ("polarization of the light incident on the beam splitter from each display being along the same direction" - claim 1)



Display 101



Display 102

Polarization of light from displays after light leaves the beam splitter – polarization of light from displays 101 and 102 now have crossed polarization (“wherein the images can be separated based on polarization” - claim 1)

